

WHAT IS CLAIMED IS:

1. A method for the removal of subcutaneous adipose layers, the method comprising the steps of:

providing a hollow needle with a tip;

providing a laser source with emitting characteristics for generating a laser

5 beam having an intensity and a wavelength for causing lipolysis of adipose cells;

generating a laser beam with said laser source;

arranging an optical fiber inside said needle with one end of said optical fiber adjacent to said tip of said needle and with another end of said fiber connected to an output of said laser source;

10 piercing the skin of a patient and bringing said needle tip into a subcutaneous adipose layer of the patient;

irradiating said adipose layer with said laser beam to cause lipolysis of said adipose layer and rupturing membranes of cells forming the adipose layer, thus transforming adeps forming said adipose layer into a liquid substance.

2. The method in accordance with claim 1, further comprising:

suctioning said liquid substance away from the adipose layer.

3. The method in accordance with claim 1, further comprising:

removing said hollow needle from the patient leaving said liquid substance in

place, said liquid substance being subsequently absorbed by the organism of the patient.

4. The method in accordance with claim 1, wherein:

said tip of said needle includes a sharp edge;

said piercing of the skin is performed with said needle.

5. The method in accordance with claim 4, further comprising:

suctioning said liquid substance away from the adipose layer.

6. The method in accordance with claim 4, further comprising:

removing said hollow needle from the patient leaving said liquid substance in place, said liquid substance being subsequently absorbed by the organism of the patient.

7. The method in accordance with claim 1, wherein:

said generating of said laser beam and said irradiating is performed to cauterize blood vessels in the adipose layer damaged by said irradiating.

8. The method in accordance with claim 1, further comprising:

irradiating the adipose layer with another laser beam to provide transcutaneous vision.

9. The method in accordance with claim 1, wherein:

said generating is performed to generate said laser beam as a pulsed laser beam.

10. The method in accordance with claim 1, wherein:

said generating is performed to generate said laser beam as a pulsed laser beam with a wavelength 0.75 and 2.5 micrometers, and with an energy level between 30 and 300 mjoules per pulse.

11. The method in accordance with claim 1, wherein:

said generating is performed to generate said laser beam as a pulsed laser beam with a pulse frequency between 10 and 60 Hz, with a wavelength between 0.75 and 2.5 micrometers, and with an energy level between 30 and 300 mjoules per pulse.

12. The method in accordance with claim 1, wherein:

said pulse frequency is between 40 and 50 Hz.

13. A method for treating adipose cells in a patient, the method comprising the steps of:

providing a hollow needle with a tip and an optical fiber inside said needle with one end of said optical fiber adjacent to said tip of said needle;

5 generating a laser beam through said optical fiber with an intensity and a wavelength for liquefying, and maintaining liquid, the adipose cells;

moving said tip of said needle into a subcutaneous adipose layer of the patient;
irradiating adipose cells in the adipose layer with said laser beam from said
optical fiber to transform the adipose cells into, and maintain the adipose cells as, a
10 liquid substance.

14. The method in accordance with claim 13, wherein:

said generating of said laser beam and said irradiating is performed to rupture
membranes of the adipose cells without substantially damaging collagen in the adipose
layer.

15. The method in accordance with claim 13, wherein:

said generating of said laser beam and said irradiating is performed to rupture
membranes of the adipose cells and maintain both collagen and blood vessels in the
adipose layer substantially unaltered.

16. The method in accordance with claim 13, further comprising:

suctioning said liquid substance away from the adipose layer.

17. The method in accordance with claim 13, further comprising:

removing said needle from the patient leaving said liquid substance in the
patient;

absorbing said liquid substance through elements of the patient adjacent the

5 adipose cells.

18. The method in accordance with claim 17, wherein:

said absorbing is through a lymphatic system and phagocytes of the patient.

19. The method in accordance with claim 13, further comprising:

providing said needle with a skin cutting tip;

cutting a skin of the patient with said skin cutting tip of said needle.

20. A device for treating adipose cells in a patient, the device comprising:

a hollow needle with a tip;

an optical fiber inside said needle with one end of said optical fiber adjacent to said tip of said needle;

a laser source generating a laser beam through said optical fiber with an intensity and a wavelength for liquefying, and maintaining liquid, the adipose cells, said intensity and wavelength of said laser beam rupturing membranes of the adipose cells and maintaining collagen in the adipose layer substantially unaltered.